APPENDIX 4-A

STORAGE OF RUBBER (RSS)

1. *Description*

a. Crude rubber is a coherent elastic solid obtained from the latex drawn (tapped) from the bark of the Hevea Brasiliensis tree, grown principally on plantations in Malaysia and Indonesia.

b. Stockpile grades of rubber currently in storage are: 1X RSS, 1 RSS, 2 RSS, and 3 RSS. When acquired, rubber shall meet Purchase Specifications P-48a-R5, P-48b-5, or P-48c-R (Current Edition).

2. *Packaging*.

a. Sheet rubber is packed in bales approximately 30 x 20 x 14 inches in size, and normally weighing approximately 250 pounds. The bales are wrapped on all sides and corners with sheets of the same quality, and the entire bale may or may not be strapped with metal bands. Occasionally, bales are received partially or completely covered with burlap.

3. *Marking*.

a. All bales of rubber originally carried markings at the time of shipment showing country of origin, type of rubber, shipper's mark, gross and net weight, and bale number. However, all bales will be remarked at the port of entry with the DLA contract lot number (countermark number) which must be used for storage purposes. Whenever identifying documents are lacking, or are not in agreement with shipping instructions, the DNSC-O shall be notified immediately to assure proper identity.

4. *Storage*

a. All rubber must be stored in a dry, dark, well-ventilated, unheated, sprinklered warehouse. Since light has a deteriorating effect on rubber in storage, all windows or other openings must be blacked out to exclude the sun's rays.

b. Rubber must be segregated and identified in storage by countermark lot number

c. To the extent possible, when the size of the lot permits, each stack of rubber should be restricted to bales of a single countermark. However, it will be permissible to store a small lot of the same grade, but another countermark, on top of a stack. A stowage pile may contain several individual stacks of different countermarks of the same grade keeping in mind accessibility for outloading. Where possible, some bales of each lot should be piled with the countermarks visible from the aisles for easy identification.

d. Individual stowage piles will be limited to 2,000 square feet of floor area. Distance between stowage piles will be at least four feet.

e. Main transportation aisles will be wide enough to permit the efficient operation of material handling equipment based on the following:

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Height of Stack	Minimum Aisle Width
Up to 8 feet	8 feet
10 feet	Over 8 feet

f. Maximum stowage height will be 11 feet which will normally settle to approximately 10 feet. Stowage will be kept at least 36 inches below automatic sprinkler heads.

g. A minimum clearance of 36 inches will be maintained between stowage stacks and exterior walls, firewalls, firedoors, firedoor openings, and other structural members (excluding vertical columns). Clearance of 18 inches will be maintained between stacks and heating appliances, piping, connected electrical wiring and fixtures, etc. Vertical columns are not to be considered in maintaining clearances regardless of their locations.

h. All rubber must be stored starting with a layer of 6 inch high pallets on the floor with rubber placed on the pallets in such a manner that the pallets extend 3 to 4 inches beyond the outer edge of the rubber. To the extent possible, all pallets under any one contiguous storage pile shall be placed so that the stringers are parallel, in order to obtain maximum ventilation. It is not intended that any material will be rewarehoused solely to conform to this requirement; it applies to new receipts, and material that may be rewarehoused for another reason. If deemed necessary, a toe strip of lumber of at least one-inch thickness may be nailed to the base pallets around the outer edge of a stack to prevent rubber from creeping. To the extent possible, a uniform number of bales shall be placed in each layer of a stack to permit inventory of each lot by count and computation.

i. After stacking ribbed smoked sheet rubber two or three bales high on the floor-pallet base, a horizontal frame, consisting of one-inch random width and length common dunnage lumber, shall be constructed around the perimeter of the pile not less than two inches inside the outer edge of the outside bales. The widest available dunnage should be used, and the frame must be nailed at the four corners for adequate stability. In building the frame, care must be exercised to guard against any unnecessary protrusion of nails into the rubber. The protrusion of nails through dunnage lumber and into rubber must be limited to that of necessity for assurances of stability and safety. (Caution - nails or any metal, if not detected and removed from the rubber prior to processing, can cause serious damage to the rubber processing machinery). Flat dunnage is then laid crosswise and lengthwise of the bales at suitable intervals to create a separation and form a stable base for placing the next layer of bales. To prevent displacement of the dunnage while the next tier is being placed upon the pile, it should be nailed to the perimeter dunnage and to sufficient cross sections to ensure stability. Since bales of ribbed smoked sheet rubber are often irregular in shape, cut dunnage may be used to level the surface of the stack upon which the horizontal frames and cross dunnage are placed. However, to the extent possible, this stability should be obtained by the arrangement of bales rather than by using excessive dunnage. This
operation should be repeated between each second or third layer of bales as required until the desired stacking height is reached.

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k. New dunnage lumber needed for stacking rubber shall be purchased at a moisture content expressed as not to exceed 20 percent of the oven-dry weight of the wood. Dunnage lumber previously acquired and protected from rain and snow prior to use will be at moisture equilibrium with the depot environment and will probably contain less than 20 percent moisture, depending upon the season of the year. Surface wet lumber shall, of course, be set aside for drying before use.

l. To prevent bales of rubber from fusing together or adhering to pallets or dunnage, an ample supply of talc shall be sprinkled evenly on the pallets and dunnage where they come in contact with rubber and on all bales where they come in contact with each other. Talc should be applied by using a mesh bag or sieve made from a can or bucket to ensure even application. A somewhat heavier application of talc will be required during storage in warm weather. Talc will be furnished by the DNSC to military depots as needed.

m. Rubber stored in areas where the temperature drops below 40 degrees Farenheit will become "frozen" during the winter season and retain this frozen condition well into the summer months. This is a desirable storage condition, as the increased rigidity of the frozen rubber has a stabilizing effect on the piles. It also has the beneficial effect of retarding the formation of bacterial mold. It is, therefore, desirable that once rubber has become frozen, the doors of the warehouse be kept closed as much as possible. However, should moisture appear on walls or floors near the piles, or mold appear on the rubber, warehouse doors should be opened on clear days only, when the humidity is low, until all traces of dampness and mold have disappeared.

n. Bales of different lots must not be intermingled in a pile. A complete description of each lot or portion of a lot within a particular location will be indicated on a card which shall be prominently displayed and securely attached to an exposed piece of supporting dunnage in the stack. DNSC depots will issue the DNSC Form 41, "Warehouse Material Identification Card," for this purpose. These forms, which are specifically designed for use with Stockpile materials, will be furnished military depots upon request.

5. *Outshipment Procedure*

a. When rubber bales are being removed from storage and outloaded for shipment, careful examination of each bale shall be performed to assure the removal of any nails and/or any other foreign objects which may be detected.

b. In most instances, rubber ordered shipped will require inspection and weighing prior to

shipment. The sales release will indicate when this is required. Inspections are performed by a DNSC representative and a representative of the purchaser. Weighing is performed by a certified public weigher under government contract, or on scales approved by the government.

(1) When weighing and/or inspection are required prior to shipment, the shipping facility is not authorized to load or release the rubber without written approval of a DNSC representative.

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(2) The delivery instructions will be shown on the face of the outshipment order. The release will indicate whether the purchaser will furnish shipping instructions, whether the consignee will furnish shipping instructions, or that the depot may ship the rubber without additional shipping instructions.

(3) After inspection, if 100 percent weighing is required, the shipping facility may ship when the certified public weigher has completed the weighing. In some instances, when prompt shipment is required, inspection and/or weighing may be waived. In these instances, the DNSC will furnish telegraphic or telephonic authority to the shipping facility approving the rubber for shipment. All telephonic authorizations will be confirmed in writing by the DNSC.

(4) Rubber is generally inspected by a proposed purchaser prior to sale. In these instances, a permit to inspect is issued by the DNSC identifying the rubber to be inspected. Although rubber may have been inspected on a permit, notification of weighing requirements and approval for shipment is required from a DNSC representative as outlined above.

(5) A representative of the DNSC will furnish depot personnel with advance information regarding the scheduling of visits for inspection or weighing of rubber.

c. An Outbound Storage Report, DNSC Form 43, will be issued within three working days after the entire shipping order quantity has been shipped or to cover each week's shipments, whichever is sooner, and shipment posted on the depot's Inventory Record Card, DNSC Form 46.

6. *Precautions To Be Taken*

a. *Health*. None.

b. *General*. Except for the powdered talc used to reduce adhesion between the bales, pallets, or dunnage, the exterior of the bales must be kept free from stains, rust, dirt, and other contamination, especially oil or grease. Bales received showing contamination with any grease or oil must not be stored, but set aside for attention of the DNSC rubber inspector.

c. Nails or any other foreign objects which may become attached to or embedded in bales of rubber can cause serious damage to rubber processing machinery. Care must be taken to assure the removal of any such objects prior to the shipment of rubber for consumption.

d. The proximity of certain other commodities has an adverse affect on rubber, and conversely, the odor of rubber may be undesirable to other commodities; accordingly, rubber is not to be stored in the same warehouse section with any other commodity without specific authority of the DNSC-OL.

e. Because of the injurious effect of copper and manganese ore, rubber must not be stored within 20 feet of copper or within 500 feet of manganese ore.

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7. *Average Storage Factor*. 6 gross square feet per short ton.

FOR ADDITIONAL INFORMATION ON THIS COMMODITY REFER TO THE MATERIAL SAFETY DATA SHEET OR THE MOST RECENT PURCHASE SPECIFICATION.